इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 10229 (1982): Open End V-belts [PGD 31: Bolts, Nuts and Fasteners Accessories]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA
JURIS
NON EXCUSAT

PROTECTED BY COPYRIGHT

UDC 621·85·052·42

IS : 10229 - 1982

Indian Standard

(Reaffirmed 2001)

SPECIFICATION FOR OPEN END V-BELTS

Pulleys and Belts Sectional Committee, EDC 42; V-Belts and Their Components Pulleys Subcommittee, EDC 42 : 5 [Ref: Doc: EDC 42(3671)]

1. Scope — Covers the main characteristics of open end V-belts used where no take-up allowance is provided or for easy dismantling and installation.

1.1 Open-end V-belts are used in place of conventional endless V-belts, in Section **Y**, **Z**, **A**, **B**, **C**, and **D**, for even normal drives in the event of an emergency.

1.2 V-belts conforming to this specification shall be suitable for operating at ambient temperatures between —18°C to +60°C.

2. Terminology

2.1 *V-Belt Drive* — A drive which consists of one or more V-belts mounted on grooved pulleys. The profiles of the belts and of the pulley grooves are such that the belts come into contact with the sides of the pulley grooves only and not with the base of the grooves.

2.2 *V-Belts* — A belt, the cross section of which is shaped roughly like a trapezium. On the cross section the trapezium is outlined by the base, sides and top of the belt.

2.3 *Angle of V-Belt* — The included angle 40° obtained by extending the sides of the belt.

2.4 *Nominal Height of a V-Belt* (*T*) — Height of the trapezium outlined on a cross section.

2.5 *Nominal Top Width of a V-Belt* (*W*) — Top width of the trapezium outlined on a cross section.

2.6 *Pitch Width* — The width of the belt at its neutral axis. The pitch width has a fixed value for each belt section and remains constant for different groove angles. Pitch width which is designated *Lp*, is essential in defining a pulley groove cross section.

3. Classification — The open-end V-belts dimensions shall be in accordance with Table 1.

3.1 The illustration given in Table 1, pertaining to belt fasteners, is only for guidance.

3.2 Pulley faces and grooves shall conform to the dimensions and tolerances given in Table 2.

3.3 Power ratings for **Y** and **Z** section V-belts shall be as given in Table 3 and 4 respectively, and for **A**, **B**, **C** and **D** section V-belts refer to IS : 2494-1974 'Specification for V-belts for industrial purposes (*first revision*)' and consider generally 60 percent of power ratings given there. Power ratings given are for guidance only.

4. Length — As per agreement between the purchaser and the manufacturer, open-end V-belt shall be supplied in any length required, subject to the following tolerance:

Maximum difference between delivered length and the ordered length $\begin{matrix}+2\\-0{\cdot}5\end{matrix}$ percent

5. Material — The material shall be as specified in IS : 2494-1974.

6. Marking — The belting shall be marked on the top surface at least at every two metres distance with the manufacturer's name and trade-mark, if any, and symbol indicating the belt cross-section.

7. Packing — The belt shall be suitably packed as mutually agreed to between the purchaser and the manufacturer.

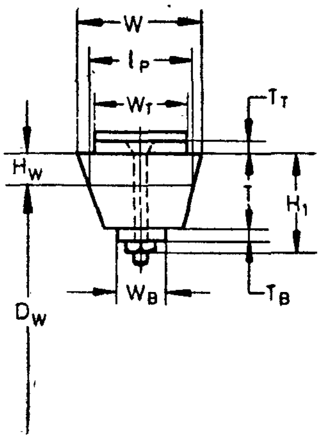
Adopted 26 July 1982	© February 1983, ISI	Gr 3

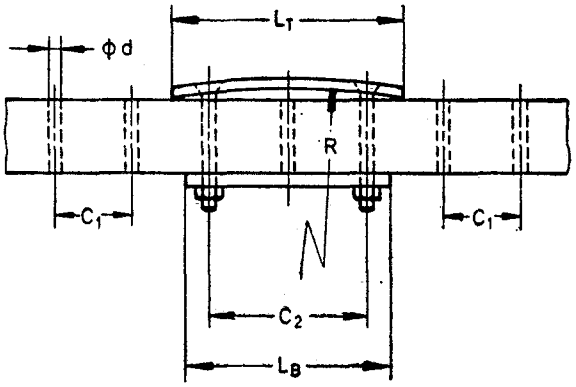
INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

TABLE 1 DIMENSIONS OF OPEN END V-BELTS

(*Clauses* 3 *and* 3.1)

All dimensions in millimetres.



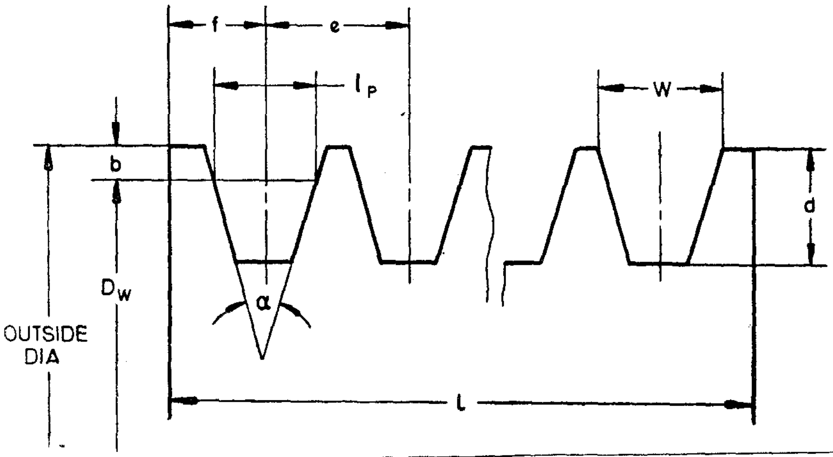


	Y	Z	A	B	C	D
Nominal top width of belt W	6	10	13	17	22	32
Nominal pitch width l_p	5·3	8·5	11	14	19	27
Nominal height T	4	6	8	11	14	19
Nominal included angle in degrees	40	40	40	40	40	40
Height above pitch length H_w	1·6	2·5	3·3	4·2	5·7	8·1
Height H_1 *Max*	5·5	8	11	13·5	18	25·5
Belt perforation dia d	1·6	1·6	2·1	2·7	3·5	4·0
Belt perforation distance (centre to centre) C_1	4·5	6·0	7·5	9·25	10·5	20·0
Fastener holes distance (centre to centre) C_2	9·5	12·5	15·5	19·0	21·5	40·5
Top plate length L_T	15·0	20·0	24·0	28·5	33·5	60·0
Top plate width W_T	5·5	8·5	10·5	15·0	17·5	24·0
Top plate thickness T_T	1·2	1·2	1·2	1·6	2·4	3·2
Bottom plate length L_B	14·5	18·0	20·5	24·0	30·0	53·0
Bottom plate width W_B	3·0	4·0	5·5	6·0	8·0	12·0
Bottom plate thickness T_B	1·0	1·0	1·2	1·6	2·4	3·2
Curvature of top plate R	25	40	50	70	112	175
Minimum recommended pitch diameter of corresponding pulley D_w	50	80	100	140	224	355

TABLE 2 DIMENSIONS OF STANDARD V-GROOVED PULLEYS

(*Clause* 3.2)

All dimensions in millimetres.



Groove Cross Section	Pitch Dia of the Pulley *Dw*	Groove Angle in Degrees α	Minimum Top Width of Groove *W*	Minimum Groove Depth Below Outside Dia *d*	Centre to Centre of Grooves *e*	Edge of Pulley to First Groove Centre *f*	Minimum Distance from Outside Dia to Pitch Dia *b*	Groove Pitch Width l_p
Y	50* and under 63	32 ±0·5	6·05	6	8 ±0·3	7 ±1	1·32	5·3
Z	63 and over	36 ±0·5	6·15	9	12 ±0·3	8 ±1	2·08	8·5
	80* and under 90	34 ±0·5	9·78					
A	90 and over	38 ±0·5	9·96	12	15 ±0·3	10 +2 −1	3·3	11
	100* and under 124	34 ±0·5	13·0					
B	125 and over	38 ±0·5	13·3	15	19] ±0·4	12·5 +2 −1	4·2	14
	140* and under 300	34 ±0·5	16·6					
C	200 and over	38 ±0·5	16·9	20	25·5 ±0·5	17·0 +2 −1	5·7	19
	224* and under 300	36 ±0·5	22·7					
D	300 and over	38 ±0·5	22·9	28	37·0 ±0·6	24·0 +3 −1	8·1	27
	355* and under	36 ±0·5	32·3					
	500 and over	38 ±0·5	32·6					

*Recommended minimum.

Note — The *Max* distance ***L*** between the outside edges of the pulley (face width) is equal to (x − 1) e + 2f, where x is the number of grooves.

TABLE 3 POWER RATINGS IN KILOWATTS FOR 'Y' SECTION (6 mm WIDE) OPEN END V-BELTS WITH 180° ARC OF CONTACT ON SMALLER-PULLEY

(*Clause* 3.3)

Speed of Faster Shaft rev/min	**Power Rating (kW) For Smaller Pulley Pitch Diameter**			**Additional Power (kW) per Belt for Speed Ratio**							
	50 mm	63 mm	71 mm	1·00 to 1·04	1·05 to 1·12	1·13 to 1·18	1·19 to 1·24	1·25 to 1·34	1·35 to 1·51	1·52 to 1·99	2·00 and over
720	0·036	0·088	0·110	0·000	0·000	0·004	0·008	0·008	0·012	0·012	0·012
960	0·075	0·118	0·147	0·000	0·000	0·008	0·012	0·012	0·012	0·016	0·016
1 440	0·113	0·177	0·220	0·000	0·004	0·016	0·016	0·016	0·020	0·020	0·025
2 880	0·225	0·339	0·423	0·004	0·012	0·020	0·025	0·030	0·035	0·040	0·045
200	0·016	0·025	0·030	0·000	0·000	0·000	0·000	0·000	0·000	0·000	0·000
400	0·031	0·049	0·061	0·000	0·000	0·000	0·004	0·004	0·004	0·004	0·004
600	0·047	0·074	0·091	0·000	0·000	0·004	0·008	0·008	0·012	0·012	0·012
800	0·063	0·099	0·122	0·000	0·004	0·008	0·008	0·008	0·012	0·012	0·016
1 000	0·078	0·123	0·152	0·000	0·004	0·008	0·012	0·012	0·012	0·016	0·016
1 200	0·094	0·148	0·183	0·000	0·004	0·012	0·012	0·012	0·016	0·016	0·020
1 400	0·109	0·173	0·213	0·000	0·004	0·016	0·016	0·016	0·020	0·020	0·020
1 600	0·125	0·197	0·244	0·000	0·008	0·016	0·016	0·016	0·020	0·020	0·025
1 800	0·141	0·222	0·274	0·000	0·008	0·016	0·016	0·020	0·025	0·025	0·030
2 000	0·156	0·243	0·305	0·004	0·012	0·016	0·020	0·020	0·025	0·030	0·035
2 200	0·172	0·267	0·335	0·004	0·012	0·020	0·020	0·025	0·030	0·030	0·035
2 400	0·188	0·288	0·366	0·004	0·012	0·020	0·025	0·025	0·030	0·035	0·040
2 600	0·200	0·306	0·382	0·004	0·012	0·020	0·025	0·030	0·030	0·035	0·040
2 800	0·215	0·329	0·411	0·004	0·012	0·020	0·025	0·030	0·035	0·040	0·045
3 000	0·230	0·346	0·435	0·008	0·016	0·020	0·030	0·030	0·035	0·040	0·045
3 500	0·262	0·399	0·489	0·008	0·016	0·025	0·030	0·035	0·040	0·045	0·050
4 000	0·297	0·439	0·533	0·008	0·020	0·030	0·030	0·035	0·045	0·050	0·055
4 500	0·322	0·469	0·565	0·008	0·025	0·035	0·035	0·040	0·045	0·050	0·055
5 000	0·349	0·508	0·609	0·008	0·025	0·040	0·040	0·045	0·050	0·055	0·060
5 500	0·376	0·526		0·008	0·030	0·040	0·045	0·050	0·050	0·055	0·060
6 000	0·388			0·012	0·030	0·045	0·045	0·050	0·055	0·060	0·065
6 500	0·407			0·012	0·030	0·045	0·050	0·055	0·055	0·060	0·065
7 000	0·425			0·012	0·030	0·045	0·050	0·055	0·060	0·065	0·070

TABLE 4 POWER RATINGS IN KILOWATTS FOR 'Z' SECTION (10 mm WIDE) OPEN END V-BELTS WITH 180° ARC OF CONTACT, ON SMALLER PULLEY

(*Clause* 3·3)

Speed of Faster Shaft rev/*min*	Power Rating (kW) for Smaller Pulleys Pitch Diameter			Additional Power (kW) per Belt for Speed Ratio							
	80 mm	100 mm	125 mm	1·00 to 1·04	1·05 to 1·12	1·13 to 1·18	1·19 to 1·24	1·25 to 1·34	1·35 to 1·51	1·52 to 1·99	2·00 and over
720	0·224	0·351	0·534	0·004	0·010	0·010	0·020	0·020	0·030	0·030	0·030
960	0·299	0·458	0·703	0·000	0·010	0·020	0·020	0·030	0·030	0·040	0·040
1 440	0·433	0·654	0·991	0·000	0·020	0·030	0·040	0·040	0·050	0·060	0·070
2 880	0·784	1·140	1·584	0·010	0·040	0·060	0·070	0·090	0·100	0·120	0·130
200	0·063	0·098	0·150	0·000	0·000	0·000	0·000	0·000	0·000	0·000	0·000
400	0·125	0·195	0·302	0·000	0·000	0·000	0·010	0·010	0·010	0·020	0·020
600	0·187	0·293	0·454	0·000	0·000	0·010	0·020	0·020	0·020	0·020	0·030
800	0·250	0·391	0·594	0·000	0·000	0·020	0·020	0·020	0·030	0·030	0·040
1 000	0·313	0·477	0·732	0·000	0·010	0·020	0·030	0·030	0·040	0·040	0·050
1 200	0·368	0·562	0·857	0·000	0·010	0·020	0·030	0·040	0·040	0·050	0·050
1 400	0·423	0·645	0·980	0·000	0·020	0·030	0·040	0·040	0·050	0·060	0·060
1 600	0·475	0·727	1·102	0·000	0·020	0·030	0·040	0·050	0·060	0·060	0·070
1 800	0·535	0·805	1·194	0·000	0·030	0·040	0·050	0·050	0·060	0·070	0·080
2 000	0·582	0·883	1·296	0·010	0·030	0·040	0·050	0·060	0·070	0·080	0·090
2 200	0·634	0·953	1·397	0·010	0·030	0·040	0·060	0·070	0·080	0·090	0·100
2 400	0·683	1·024	1·451	0·010	0·040	0·050	0·060	0·070	0·080	0·100	0·110
2 600	0·724	1·059	1·523	0·010	0·040	0·050	0·070	0·080	0·090	0·100	0·120
2 800	0·780	1·141	1·595	0·010	0·040	0·060	0·070	0·080	0·100	0·110	0·130
3 000	0·820	1·187	—	0·020	0·050	0·060	0·080	0·090	0·110	0·120	0·140
3 500	0·914	1·276	—	0·020	0·050	0·070	0·090	0·110	0·120	0·140	0·160
4 000	0·992	—	—	0·020	0·060	0·080	0·100	0·120	0·140	0·160	0·180
4 500	1·014	—	—	0·020	0·070	0·090	0·110	0·130	0·150	0·180	0·200

EXPLANATORY NOTE

This standard covers the main characteristics of open end V-belts used where no take up allowance is provided or for easy dismantling and installation.

Open end V-belts operate with metal fasteners and work on drives with maximum belt speed of 18 m/s with normal power rating. They have multiple prestretch layers of extra heavy square woven fabric bonded with each other having rubber compound in-between and moulded in a uniform manner.

In the preparation of this standard considerable assistance has been derived from DIN 2216-1972 Open-ended V-belts, dimensions, Deutsches Institut für Normung.

Printed at Arcee Press, New Delhi, India